

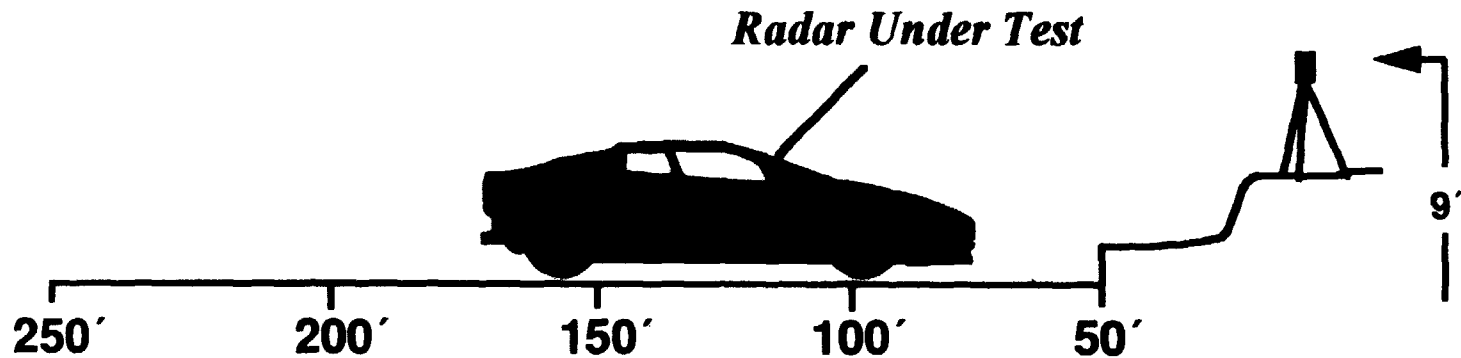
# Road Testing of Radars - 3

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## ❖ Stationary Mode Tests

### ❖ Applied Concepts Stalker Dual

**Modulation stronger in audio monitor at 120' with no target &  
Display shows *79 MPH* for target speed  
*During tracking of traffic all operation was normal & no interference***



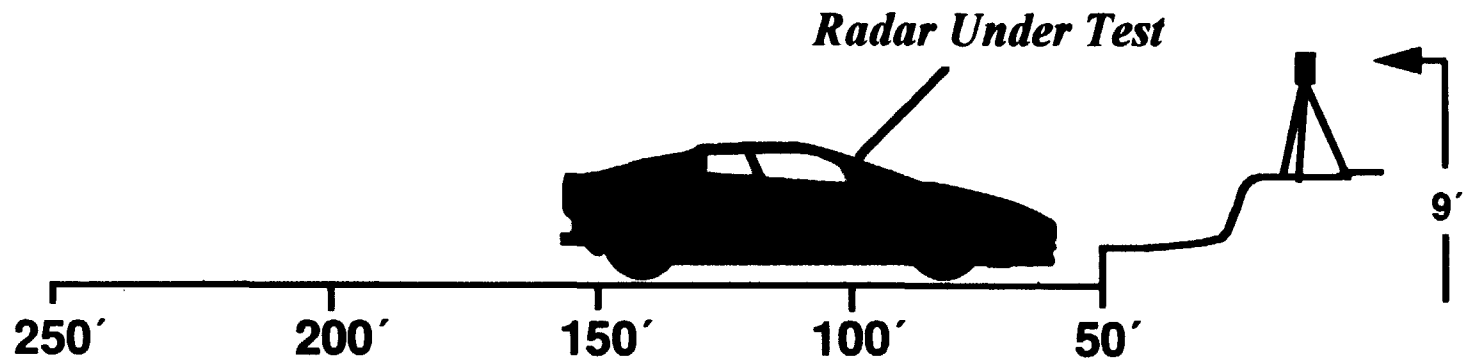
# Road Testing of Radars - 4

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## ❖ Stationary Mode Tests

### ❖ Applied Concepts Stalker Dual

**Filters or gain switching & modulation of SWT heard at 100'**  
**No target speeds displayed & operation normal when traffic passes**



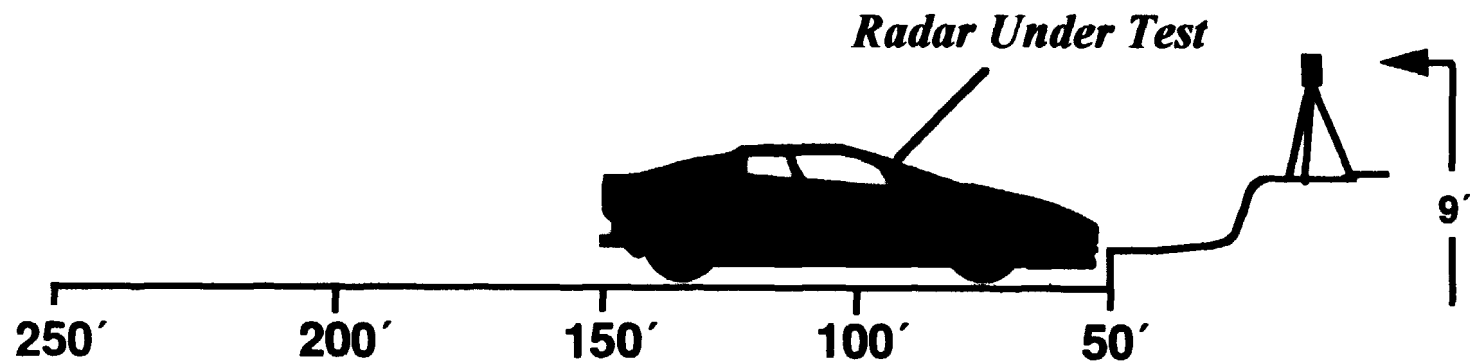
# Road Testing of Radars - 4

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## ❖ Stationary Mode Tests

### ❖ Applied Concepts Stalker Dual

**Oscillation heard in audio & 53 MPH displayed at range of 75'**



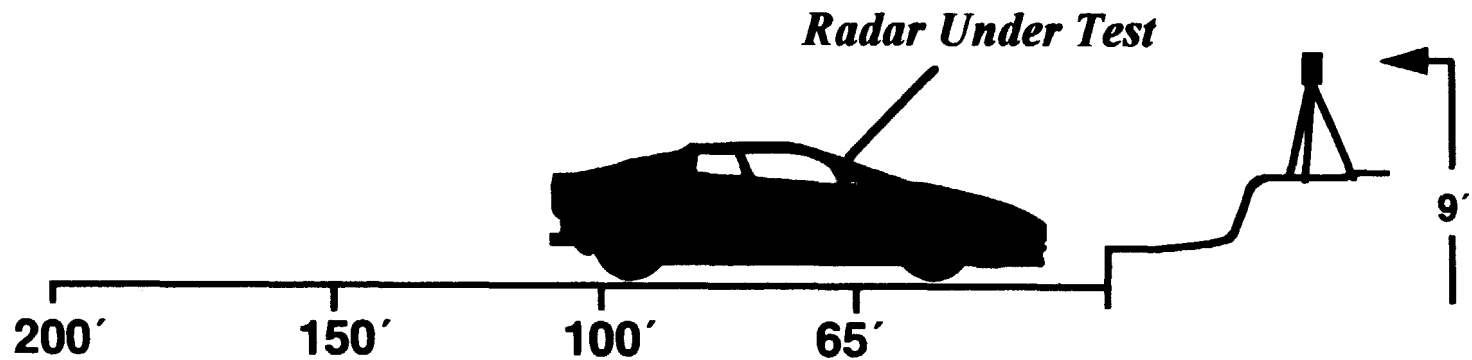
# Road Testing of Radars - 5

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## ❖ Stationary Mode Tests

### ❖ Applied Concepts Stalker Dual

**Modulation of SWT heard & target window  
displays 26 MPH at 50'**



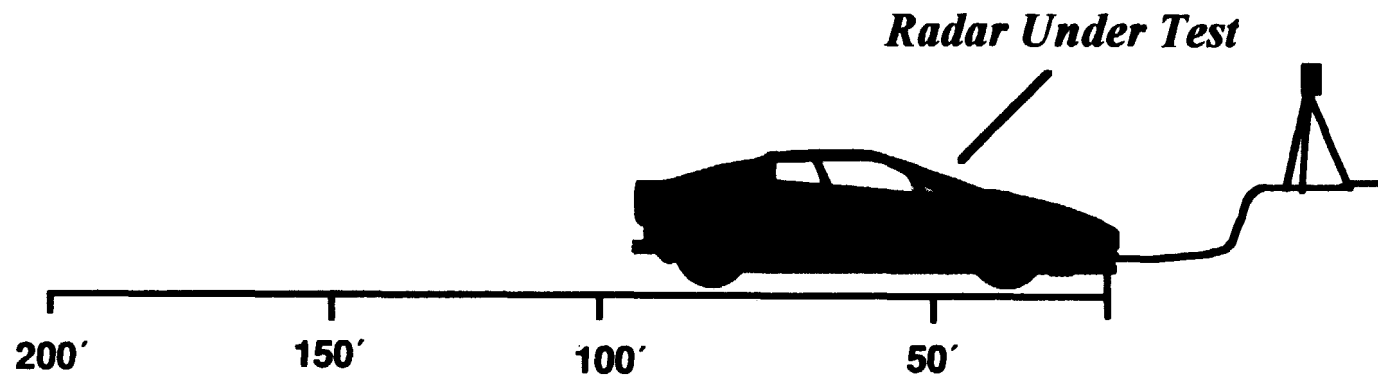
# Road Testing of Radars - 6

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## ❖ Stationary Mode Tests

### ❖ Kustom KR-10

**No modulation heard & no effects on display at 50'**



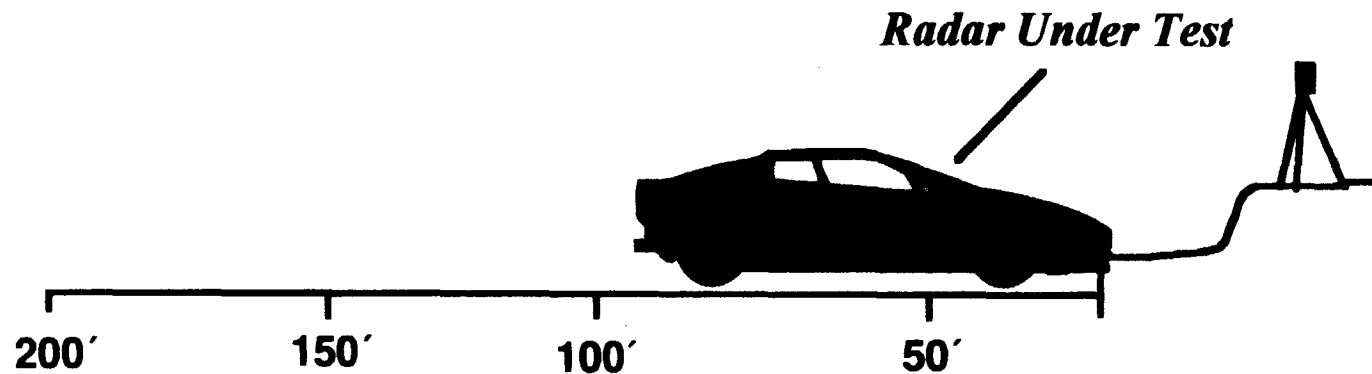
# Road Testing of Radars - 7

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## ❖ Stationary Mode Tests

### ❖ Decatur Electronics M. V. Range Master

**No modulation heard & no effects on display at 50'**



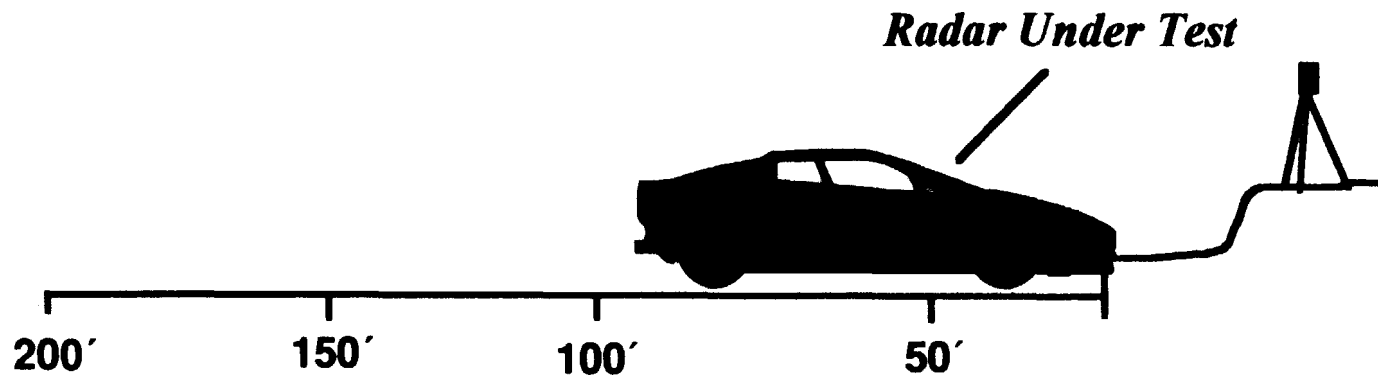
# Road Testing of Radars - 8

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## ❖ Stationary Mode Tests

### ❖ MPH Inc. K-55

**No modulation heard and no effects on display at 50'**



# Moving Mode Radar Tests

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**No Effect of SWT noticed during moving tests at speed of 30 MPH on any of the radars that were being tested.**



# Radar System Frequency Stability Testing

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## ❖ Reason For Stability Tests

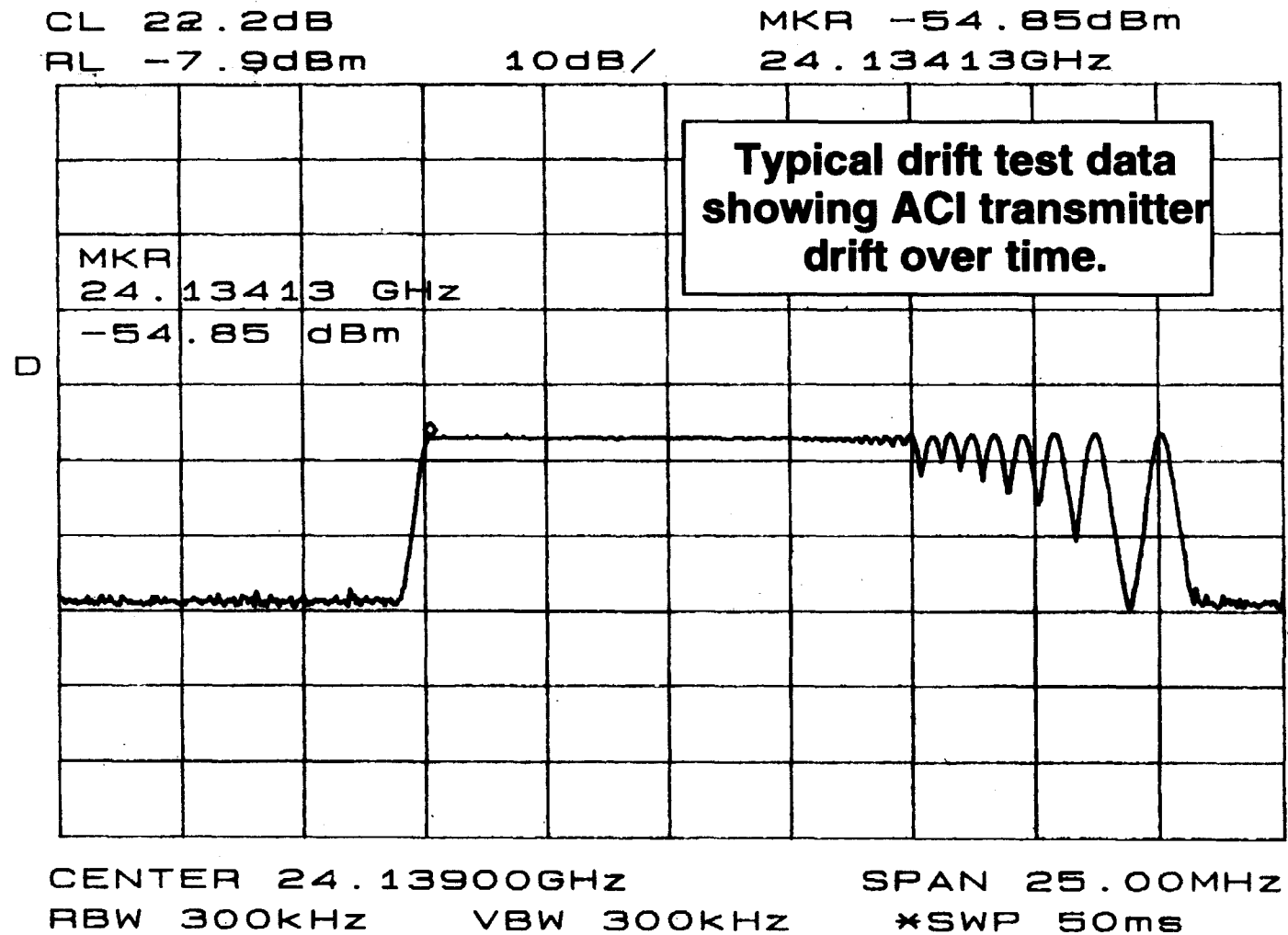
- ◆ Determine if radar would drift down in frequency to 24.100 GHz
- ◆ SWT carrier could interfere if radar frequency within 10 KHz of radar

## ❖ Drift Measured from “cold” to 30 minutes warm-up

<u>Radar Type</u>	<u>Starting Frequency</u>	<u>Ending Frequency</u>	<u>Total Drift</u>
ACI Stalker	24.149 GHz	24.134 GHz	15.0 MHz
Decatur Rangemaster	24.171 GHz	24.143 GHz	28.3 MHz
Kustom KR-10	24.166 GHz	24.164 GHz	2.0 MHz
MPH K-55	24.158 GHz	24.156 GHz	2.0 MHz

## ❖ Frequency drift of ACI Stalker is the worst case that was measured

# Radar System Frequency Stability Testing



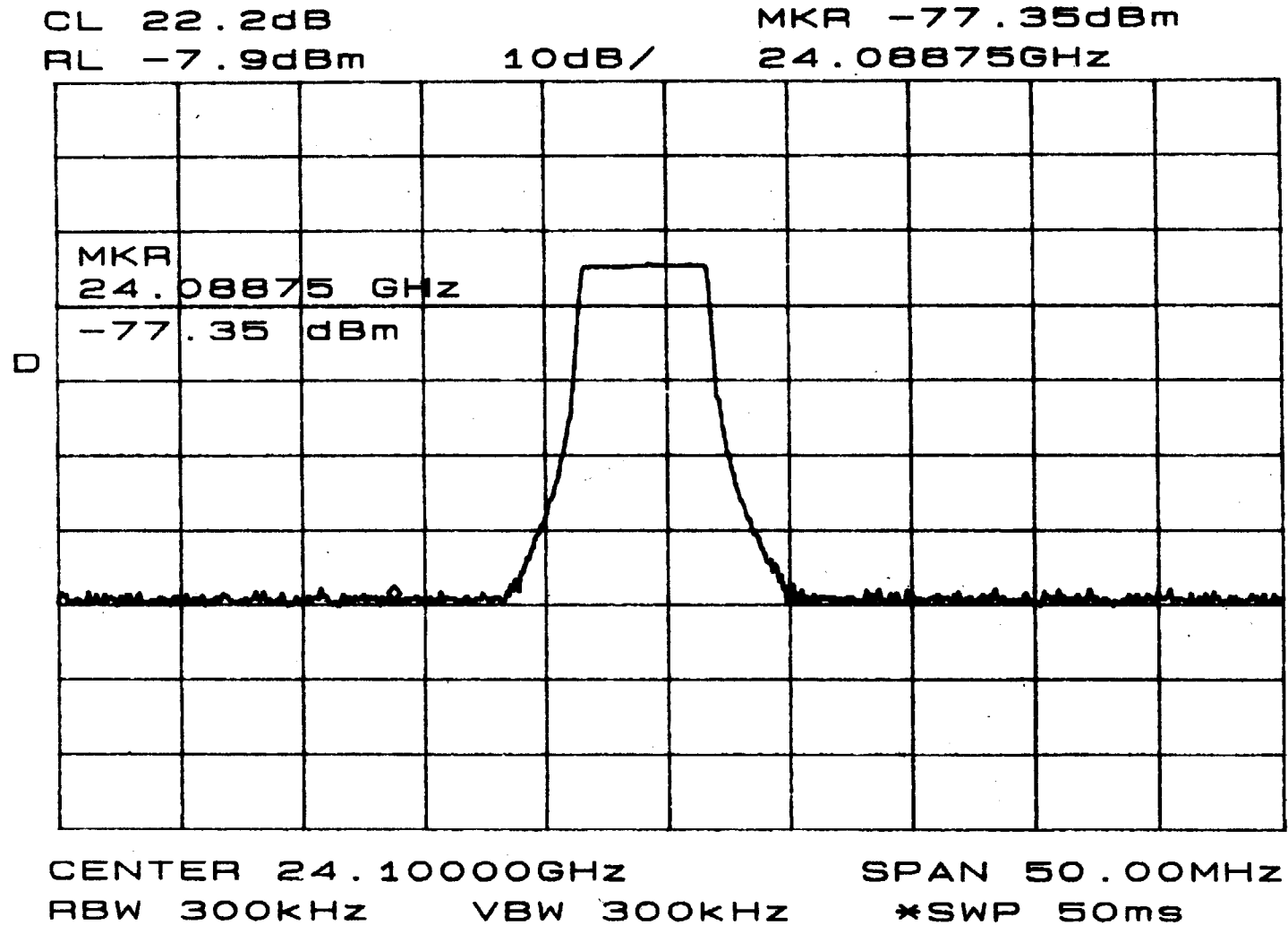
# **Technical Issues Raised by Cobra Inc. - 1**

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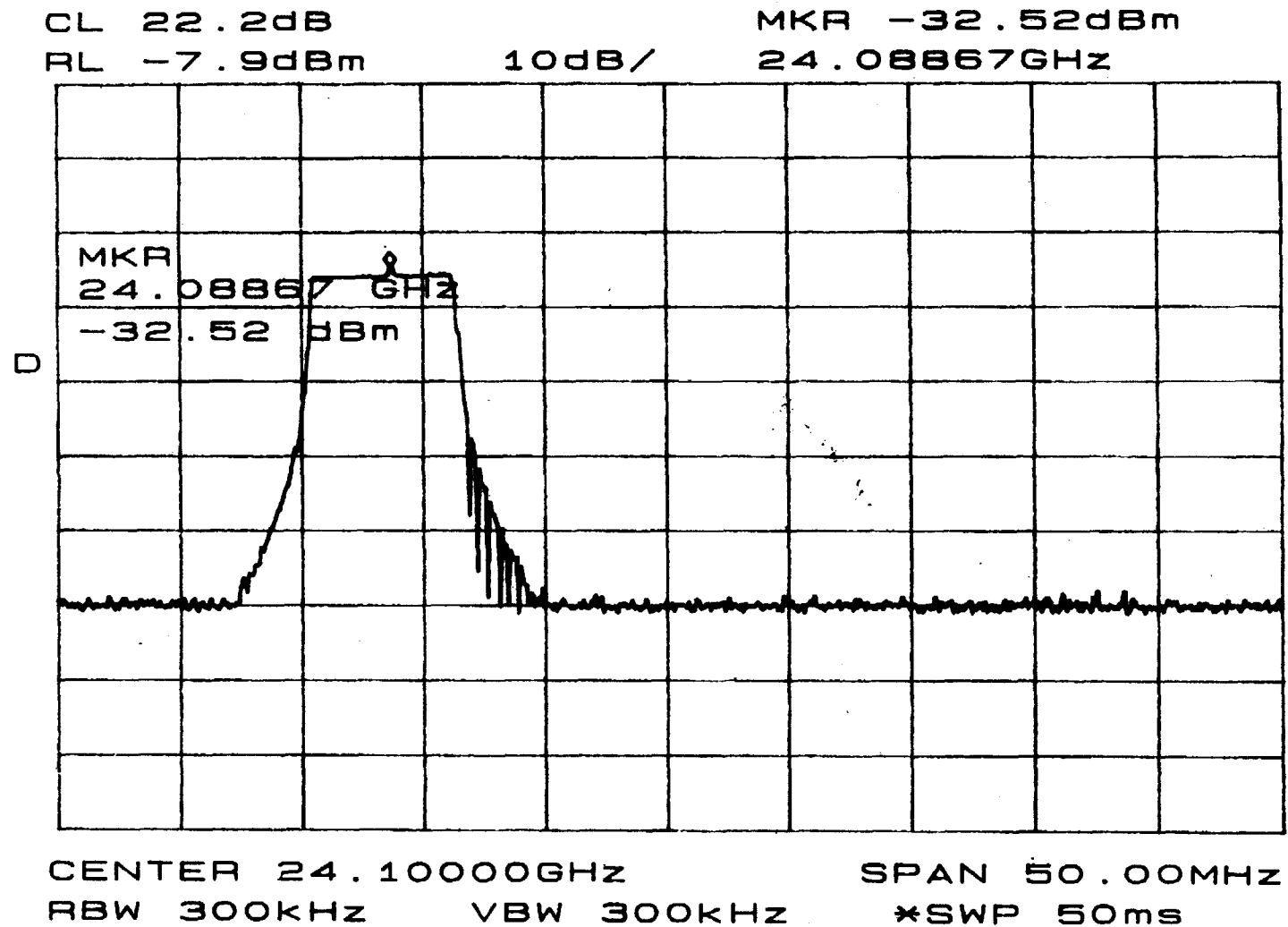
## **Power Supply Issues Raised by Cobra**

- **Q What is the power supply ?**
- **A 12 Volt, 7 Amp hour Gel-Cell Battery**
- **Q What happens “ if its battery goes dead or power supply is interrupted ?”**
- **A The Prototype operates with reduced power until the battery reaches a level of 6.5 volts at which time the modulation stops. At 6 volts the transmitter stops transmitting.**

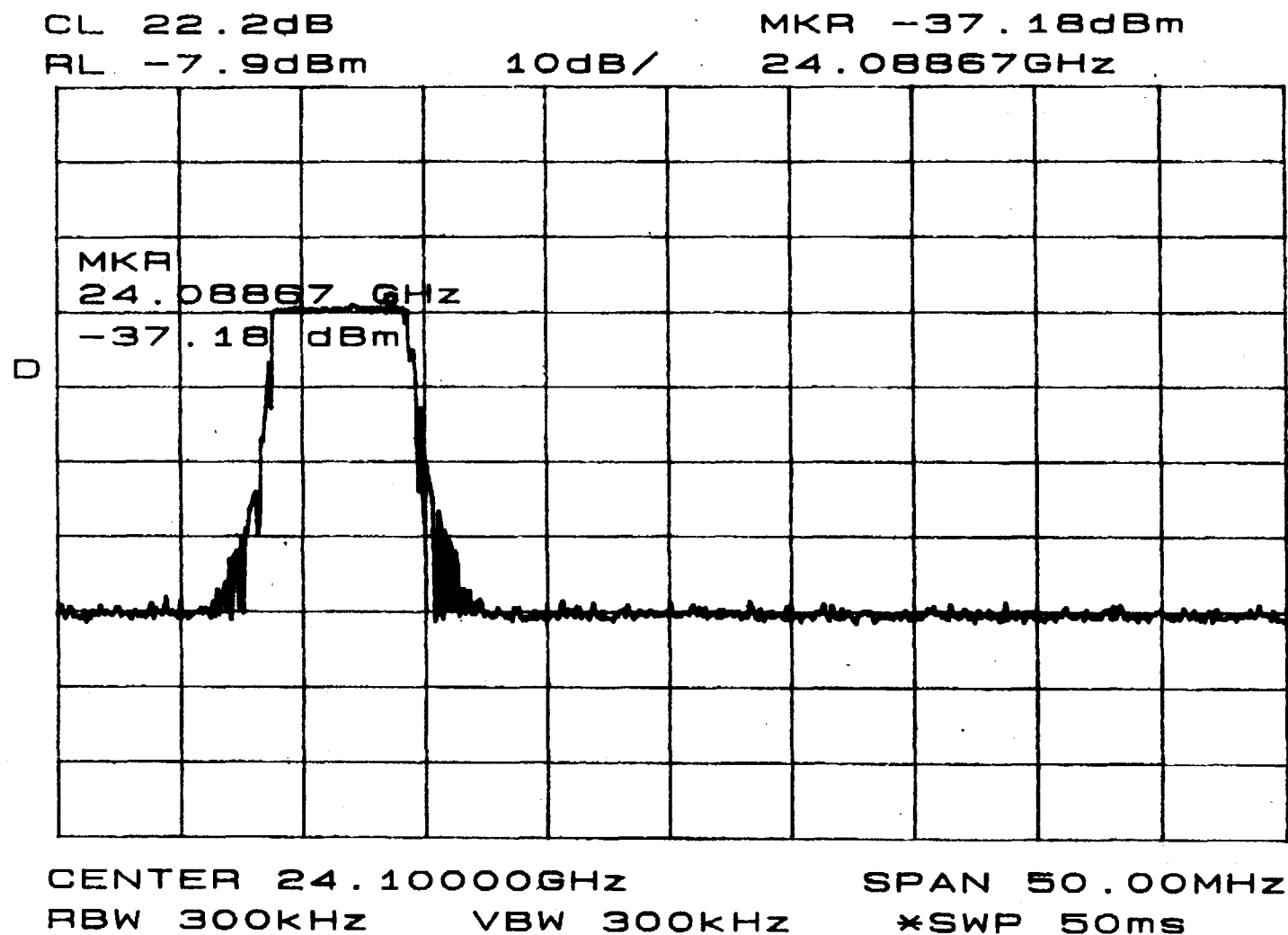
# SWT Performance at 13.8 Volts



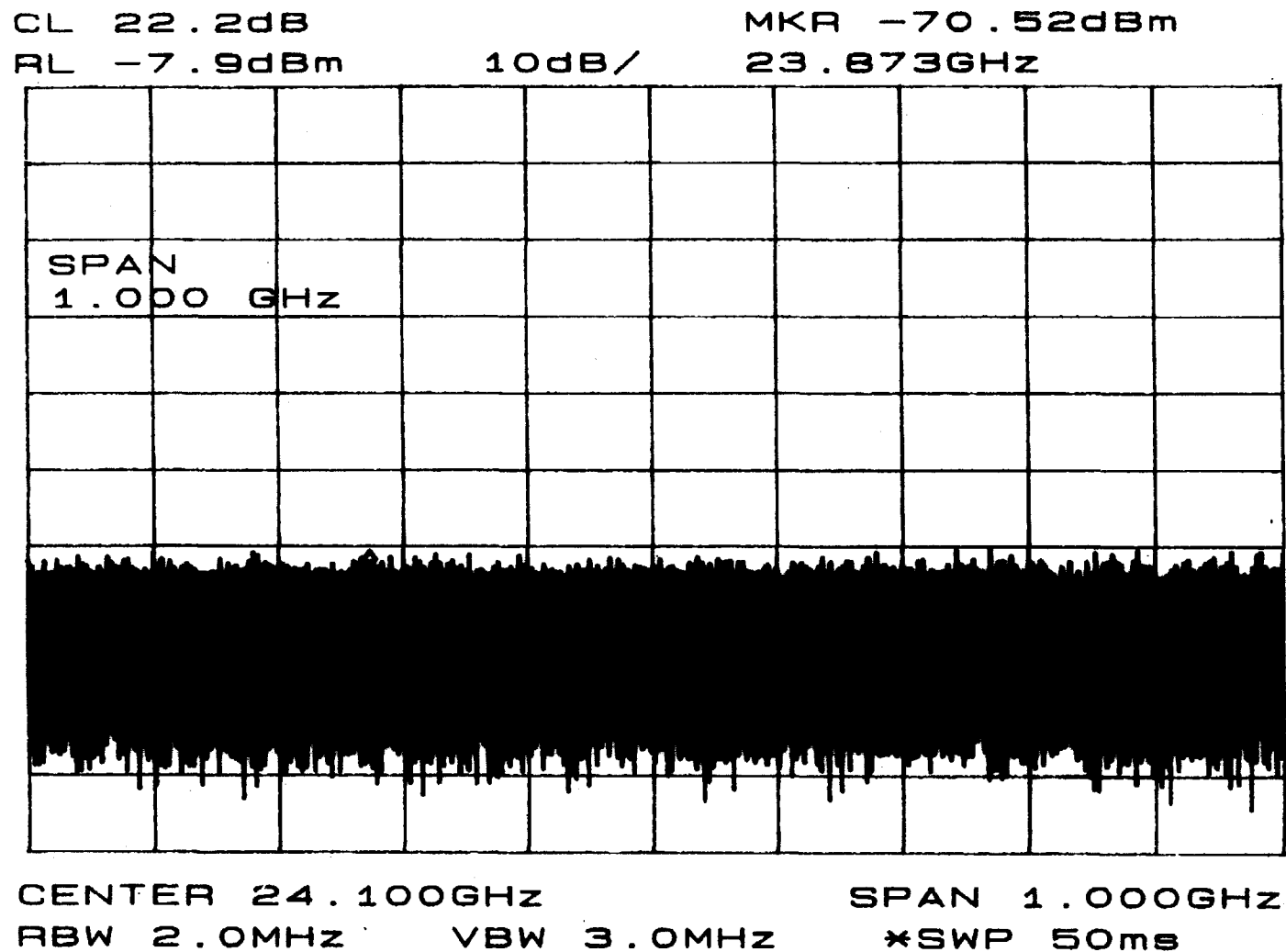
# SWT Performance at 9.0 Volts



# SWT Performance at 7.0 Volts

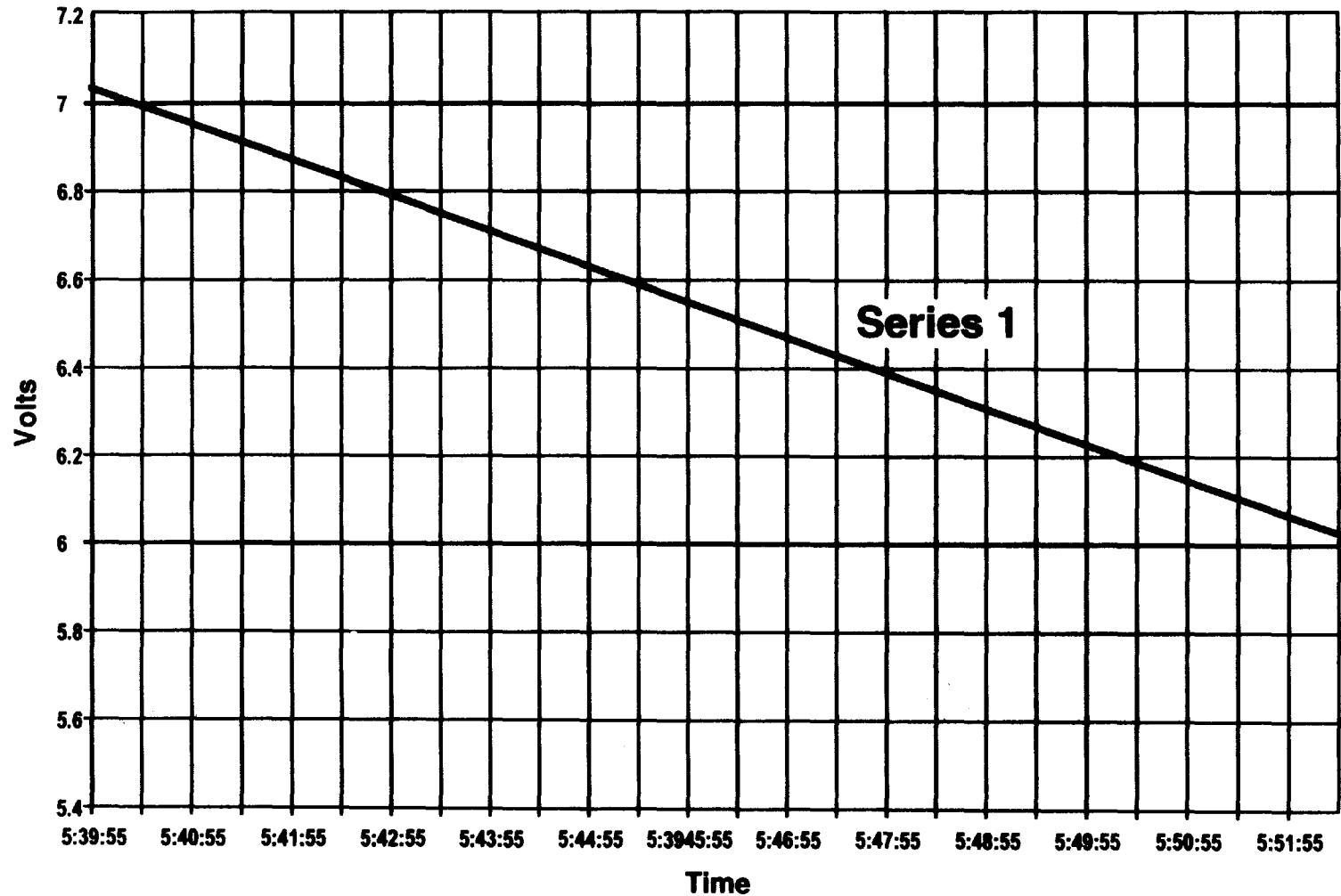


# SWT Performance at 6.0 Volts



# SWT Prototype Battery Discharge History

**SWT Battery Discharge Curve Starting at 14 Hours, 23 Minutes, & 55 Seconds of Operation**





## **Technical Issues Raised by Cobra Inc. - 2**

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- **Q Why does the RADAR unit use higher power than the Cobra Safety Transmitter?**
- **A The RADAR mode requires higher power for vehicle detection given the  $1/R^4$  losses and resulting short vehicle dwell time in the beam.**
- **A Overtaking emergency vehicles carrying the system illuminates the warning receivers from the back in the backlobe of the receiver antenna where a response null exists.**

# Conclusions

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- ❖ **Interference with Police Radar Operations thought not to be a problem when the Police radar is operated according to NHTSA guidelines.**
- ❖ **Unattended transmitter operating out of control thought not to be a problem.**

## **CERTIFICATE OF SERVICE**

I, Chellestine Johnson, a secretary in the law firm of Fletcher, Heald & Hildreth, P.L.C., do hereby certify that copies of the foregoing "Supplementary Comments" were sent this 22nd day of March, 1996, by hand delivery and first-class United States mail, postage prepaid, to:

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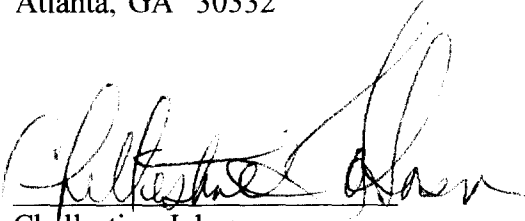
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